of our burrowing bees of the genus *Halictus*. Some years ago Melander and Brues published an interesting account of *H. pruinosus* Robertson.[1] In this they showed that the most formidable enemy of the bee is the *Pseudomethoca*. They found that the female *Pseudomethoca* hangs about the burrows and attacks the female bee, and they have given a very entertaining figure and description of a battle between the bee and the Mutillid. Fully fifty specimens of the latter insect were taken from one square meter of *Halictus* colony during a single summer. In the dry pasture in which I found the gynandromorph there were many *Halictus* colonies, so that, in all probability, the specimen had passed through its larval and pupal development in one of the nests.

LIST OF SPHINGIDÆ OF AMERICA NORTH OF MEXICO.

By William Barnes, M. D., and J. McDunnough, Ph. D.

Decatur, Illinois.

Since Rothschild & Jordan issued their Revision of the Lepidopterous Family Sphingidæ in 1903, no attempt has been made to give a complete list of our North American species based upon this monograph. Holland in his Moth Book follows their work but his list does not pretend to be complete; as several new additions to our fauna have lately come under our notice, and as we have been made aware of several slight errors in the revision relating to North American species, it has occurred to us that an annotated list would perhaps be of service to collectors and future catalog makers. We have followed the revision as regards nomenclature in nearly every case, basing our remarks upon material in Coll. Barnes, which is practically complete in North American Sphingidæ. The list of localities is not intended to be exhaustive, but in most instances merely mentions localities from which we actually possess specimens.

For the benefit of those unfamiliar with Rothschild & Jordan's

[1] Guests and Parasites of the Burrowing Bee Halictus. Biol. Bull. V, No. 1, June 1903, pp. 1–27, 6 figs.

monumental work, we might state that the trinomial system of nomenclature here adopted is based on the fact that all species are more or less liable to geographical variation; taking the first geographical race described as the name for the whole species, the names of the different racial forms are merely added to this name without intervention of the term *var.* Thus *chersis oreodaphne* would be equivalent to *chersis var. oreodaphne*, and, since the first described race is as much a geographical variety as all others, the name *chersis chersis* must be used to indicate the typical race. Variations within the limits of a single race are termed forms; thus we have *P. modesta imperator f. t. kunzei* which indicates the summer form (kunzei) of the *imperator* race (Ariz.) of *P. modesta Harris.*

In conclusion we might state that we are thoroughly in sympathy with the system of nomenclature advocated so ably by Rothschild & Jordan. The making the first species mentioned under a given generic name the type of that genus may seem at first sight rather radical, but it at least possesses the advantage of being absolutely infallible, besides saving an enormous amount of misspent labor in searching through ancient and musty volumes, as is involved under the "restriction" principle, a principle only capable of being carried out with any fairly assured certainty of success when one has the entomological literature of the world at one's command. Surely a system which will assure a lasting stability and uniformity in our only too involved entomological nomenclature should be hailed with acclamation by all those who have the true welfare of entomology at heart; like a dose of purging medicine it may cause considerable discomfort for a time, but if the result will be to free our successors from all the difficulties we are at present contending with, then let us submit with cheerful spirits to any such slight personal inconvenience as it may entail.

List of Sphingidae north of Mexico.

Subfamily ACHERONTIINÆ.

Tribe ACHERONTIIÆ.

Genus **Herse** Oken.

(1) **H. cingulata** Fabr. N. Y. to Tex.
ab. decolorata Hy. Edw.

Tribe Sphingicæ.

Genus **Cocytius** Hbn.

(2) **C. antaeus** Drury.
(a) **antaeus medor** Stoll. Fla.

Typical *antæus* is taken in the Antilles, not in N. America.

Genus **Protoparce.** Burm.
(3) **P. sexta** Johanns. U. S.
syn. *carolina.*

Holland mentions *P. occulta R. & J.* from Texas. We do not, however, know of any authentic specimens from this locality. It occurs in Mexico.

(4) **P. quinquemaculatus** Haw. Nearctic Region.
syn. *celeus.*
(5) **P. rustica** Fabr. N. Y. southward.
(6) **P. brontes** Dru.
(a) **brontes cubensis** G. & R. Southern Florida.

The typical *brontes* is confined to Jamaica, and Drury's citation of New York as habitat was doubtless due to an error. The form found in South Florida, of which Dr. Barnes has 4♂'s, is *cubensis* G. & R. and differs from *brontes* only in its clearer markings and slightly more variegated appearance.

(6a) **P. muscosa** R. & J. Tex., Ariz.

Recorded by Doll from Texas; 1♂ in Coll. Barnes from Prescott, Ariz. ex.—larva.

(7) **P. brevimargo.** Butl. Ariz.

This species has been placed by Rothschild & Jordan in the synonomy of *P. florestan*, which species is characterized by the possession of a pulvillus on the claw segment. Dr. Barnes has, however, recently received a single ♂ specimen from Huachuca Mountains, Ariz., in which the pulvillus is *not* present on any of the claws. According to Rothschild & Jordan this would place it under *P. corallina* Druce. Druce in his Biol. Cent. Amer. figures both species, and the specimen in question agrees so exactly in all particulars with his figure of *brevimargo* that we have had no hesitation in identifying it as this species. Until further material is forthcoming we consider it advisable to treat *brevimargo* as a

separate species. There is no doubt about the authenticity of the locality, and we are in hopes of receiving further specimens another year, which may throw some light on the synonomy of this difficult group.

Genus **Chlaenogramma** Sm.
(8) **C. jasminearum.** Guer. — Ohio, N. J., D. C.
Genus **Dolba** Walk.
(9) **Dolba hylaeus.** Drury. — N. Y., Md., Ill., Tex.
Genus **Dolbogene** R. & J.
(10) **D. hartwegi** Butl. — Ariz.

1♂ in Dr. Barnes' collection taken by O. Poling in Southern Arizona.

Genus **Isogramma** R. & J.
(11) **I. hageni** Grt. — Tex.
Genus **Ceratomia** Harris.
(12) **C. amyntor** Hub. — N. Y., Penn., S. Dak.
(13) **C. undulosa** Walk. — S. Dak., Ill., Penn.
(14) **C. catalpae** Bdv. — N. Y., Ky.
Genus **Isoparce** R. & J.
(15) **I. cupressi** Bdv. — Geo., Fla.
Not in Dr. Barnes' Coll.
Genus **Dictyosoma** R. & J.
(16) **D. elsa** Stkr. — Arizona.
Genus **Atreus** Grt.
(17) **A. plebeja** Fabr. — N. Y., N. J., Ala., Tex.
Genus **Hyloicus** Hbnr.
(18) **H. lugens** Wlk. — S. Western States?
syn. *andromedæ*. Bdv.

We do not know of any authentic record of this species having been taken in the United States, but Neumœgen mentions that a few specimens have been captured in the southwestern states. Possibly he was in error regarding the species.

(19) **H. geminus** R. & J. — Tex.

Two Specimens in Coll. Barnes labelled Galveston, Texas, received as *lugens*, correspond with this new species. It may be separated from the foregoing by the large black markings on underside of abdomen.

(20) **H. eremitus** Hub. — N. J., N. Y., Md., Ill.
(21) **H. eremitoides** Streck. — Tex.

This species, so frequently confused with *lugens* and *separatus*, may at once be separated from the former by its much smaller size and gray color, and from *separatus* by the fact that "the prothoracic tegulæ have no obviously yellow marginal spots." In Coll. Barnes are 4 ♂ and 4 ♀ from Kerrville, Texas.

(22) **H. separatus** Neum. New Mexico.

This species was long regarded as equivalent to *andromedæ* Bdv.=*lugens* Walk. It is however smaller and lighter in color than this form, and is most readily distinguished by the presence of a distinct yellow marginal spot on each side of the collar; these spots are always vestigial in the nearly allied species. Dr. Barnes possesses 2 ♂ and 3 ♀ from New Mexico.

(23) **H. istar** R. & J. Tex.

This is the largest species of the group and is represented in Coll. Barnes by 2 ♂ and 2 ♀, from Kerrville, Texas. Apart from difference in the genitalia it is separated from its near allies by the fact that the interspace between the black middle stripe of the prothoracic tegulæ and the black upper edge is dark brown, much deeper in color than the thorax and adjacent parts. It also lacks the black longitudinal line in the upper portion of cell on primaries.

(24) H. **chersis** Hbn.
(a) **chersis pallescens** R. & J. N. Mex., Ariz
(b) **chersis oreodaphae** Hy. Edw. Cal.
(c) **chersis chersis** Hbn. Eastern States.

A careful examination of the specimens in Coll. Barnes named *oreodaphæ* revealed the fact that with the exception of 2 ♀ they were all referable to the form *asellus* of *perelegans*. These 2 ♀'s belong to the new form, *pallescens*. Apart from their larger size and the marked difference in genitalia they may be most easily distinguished from *asellus*, to which they bear a strong superficial resemblance, by the fact that the gray color of primaries is much less even than in *asellus* and always shows whitish markings below the black dashes, exactly as in typical *chersis*. The broader white band distal to the black marginal line on primaries, as well as the faint black middle line on patagia by which Rothschild & Jordan differentiate *asellus*, are not always very

prominent in this species, but may, however, often be used as a means of separation.

(25) **H. vancouverensis** Hy. Edw.
(a) form **albescens** Tepp. Utah, Colo., Wash., B. C., Man.

The specimens in Dr. Barnes' Coll. do not seem to verify Bruce's statement that *vancouverensis* and *albescens* are two seasonal forms. We have specimens of *vancouverensis* dated May 8 (Colo.), May 10 (Wash.), June 16 (Colo.), June 9 (Manitoba), July 8, 24, (Colo.), and *albescens* dated May 1 and 5 (Colo., B. C.), June 24 (Colo.), and July 26 (Colo.).

(26) **H. libocedrus** Hy. Edw.
(a) **libocedrus libocedrus** Hy. Edw. Ariz.
(b) **libocedrus insolita** Lint. Tex.

Rothschild & Jordan separate these two geographical races by the color of the abdominal side spots, in *libocedrus* they are white, whilst in *insolita* they have a yellowish tinge. Lintner in his original description of *insolita* states, however, that "elongated patches (bands) of *clear white scales* extend over nearly half of each of the segments on its anterior half." Of the two specimens we have seen from Texas, both ♀'s, one has the spots of a distinct yellowish tinge, in the other they are almost pure white, so we are inclined to think that Rothschild & Jordan's diagnosis will hardly hold. The material of *libocedrus*, however, at our disposal is too much worn on the abdomen to allow of our forming a definite opinion in this respect.

(27) **H. perelegans** Hy. Edw.
(a) form **asellus** R. & J. Colo., Ariz.
(b) " **perelegans** Edw. Cal., B. C.

Apart from the difference in genitalia it is almost impossible to separate *asellus* from a small gray form of *chersis*. The form of the harpe is, however, so markedly different in both species that even a superficial examination of the genitalia serves to separate them. Whether *asellus* is a form of *perelegans* or may prove to be a good species we do not feel competent to decide. As far as our own experience goes, the two forms occur in different territory, which would at least point to a geographical sub-

species. *Asellus* seems fairly common in Colorado and Arizona, much more so than the form *pallescens* of *chersis*.

(28) **H. canadensis** Bdv. N. Hamp.
(29) **H. francki** Neum. Baltimore, Md.
Two specimens in Coll. Barnes.
(30) **H. kalmiae** Ab. & Sm. N. Y., Penn., Va.
(31) **H. gordius** Cram.
(a) **gordius oslari** R. & J. Colo.
(b) **gordius gordius** Cram. N. H., N. J., Va., Minn., Ill.

The Colorado race is easily distinguishable from the eastern specimens by its much greater size and the paler color of primaries.

(32) **H. luscitiosa** Clem. N. Y., N. J.
(33) **H. drupiferarum** A. & S.
(a) **drupiferarum drupiferarum** A. & S. Atlantic Subregion.
(b) **drupiferarum utahensis** Hy. Ed. Pacific States.

The western form *utahensis* is said to be whiter than the eastern form. Dr. Barnes has however a long series from Colorado, Oregon and British Columbia which it is impossible to separate from the ordinary *drupiferarum* of the east. In fact New York specimens in the same collection are considerably whiter than some of the western species. One ♀, however, from British Columbia corresponds exactly with Hy. Edwards' original description, having the primaries much more suffused with whitish gray, and the median band of the secondaries much broader, both of which points of difference do not hold for the remaining western specimens. We would be inclined to consider *utahensis* as merely an aberrant form of *drupiferarum* and not a geographical subspecies as treated by Rothschild & Jordan.

(34) **H. dolli** Neum.
(a) **dolli coloradus** Sm. Colo., Utah.
(b) **dolli dolli** Neum. Ariz.

We consider Rothschild & Jordan correct in treating these as merely geographical varieties of the same species. *Dolli* lacks the black submarginal line and the dashes of the posterior portion of the disk, corresponds, however, in all other respects with *coloradus*.

(35) **H. sequoiae** Bdv. Cal.
(36) **H. pinastri** Linn.

Dr. Barnes has two specimens of this species, one labelled California, the other Waghorn, Alberta. The Californian specimen lacks the black dashes usually found in *pinastri* and has further the brown crossbands of primaries more strongly developed than in the Alberta specimen.

Genus **Lapara** Walk.
(37) **L. coniferarum** A. & S. N. Y., R. I.
(38) **L. bombycoides** Wlk.
syn. *harrisii* Clem. Me., N. Y., Minn.
(39) **L. pineum** Lint.

Rothschild & Jordan regard this as an extreme aberrant form of *coniferarum*. We do not know the species, and believe that only two specimens have ever been taken.

Genus **Exedrium** Grt.
(40) **E. halicarniae** Stkr. Fla.

Subfamily AMBULICINÆ.

Genus **Protambulyx** R. & J.
(41) **P. strigilis** L.
ab. **rufipennis** Btlr. Fla.?

In Dr. Barnes' collection is a specimen labelled Palm Beach, Fla., received as *P. carteri R. & J.* This on a careful examination proved to be *P. strigilis, ab. rufipennis*. We cannot however vouch for the correctness of the locality label.

(42) **P. carteri** R. & J. Fla.

Rothschild & Jordan give Florida as a locality for this new species on the strength of a single ♂, received from the Kny Scheerer Co.

Genus **Sphinx** L.
(43) **S. cerisyi** Kirby.
(a) **cerisyi cerisyi** Kirby. Man., Ont., Me., N. Y.
(b) **cerisyi astarte** Stkr. Colo., Utah
(c) **cerisyi ophthalmica** Bdv. Cal., Wash., Nev., B. C.
(a) form **pallidulus** Edw.
(d) **cerisyi saliceti** Bdv. Ariz.

Two ♂'s in Dr. Barnes' collection labelled Catskill Mountains differ so decidedly from typical *cerisyi* in shape of wing and post-discal lunules, approaching in this respect, as well as in the browner ground color, the form *ophthalmica*, that one wonders if an error in labelling has not occurred somewhere. Both these ♂'s are further remarkable for the entire lack of the white dash at end of cell.

Saliceti Bdv. is a brown form from Arizona in which the second blue spot of the eye mark on secondaries is straight and not curved towards the third spot. All three blue spots are present and distinct from each other.

(44) **S. jamaicensis** Drury.
(a) form norm. **geminatus** Say. N. J., Ill.
(b) f. ab. **jamaicensis** Dru.
(c) f. ab. **tripartitus** Grt.

In Dr. Barnes' collection is a remarkable aberration lacking all markings on both primaries and secondaries with the exception of the apical lunules.

Genus **Calasymbolus** Grt.
(45) **C. excaecatus** A. & S. Ill., Colo., B. C.
(46) **C. myops** A. & S. Mass., Pa., Ohio, Colo.
(47) **C. astylus** Dru. N. Y., N. J.
Genus **Pachysphinx** R. & J.
(48) **P. modesta** Harris.
(a) **modesta modesta** Harris. Ill., B. C.
syn. *occidentalis* Edw.
(b) **modesta imperator** Stkr. Colo., Ariz.
(a′) f. t. **kunzei** R. & J.

The form *kunzei* is the extremely pale summer brood of *imperator* Stkr.

Genus **Cressonia** G. & R.
(49) **C. juglandis** A. & S. N. Y., Mass., Ohio, Ark., Tex.

Subfamily SESIINÆ.

Tribe DILOPHONOTICÆ.

Genus **Pseudosphinx** Burm.
(50) **P. tetrio** L. Fla., Tex.
Genus **Erinnyis** Hbn.
(51) **E. alope** Dru. Fla.
syn. **edwardsii** Butl.

(52) **E. lassauxi** Bdv.
f. **merianae.** Fla.

The typical *lassauxi* Bdv. occurs only in South America. The Florida form with the red area of hind wings prominent is f. *merianæ.*

(53) **E. oenotrus** Stoll. Fla.
(54) **E. crameri** Schaus. Fla.
(55) **E. ello** L. Fla., N. Mex.
(56) **E. obscura** Fabr. Fla., Tex., Ariz.
(57) **E. domingonis** Butl. Tex.
syn. *festa* Hy. Edw.

Rothschild & Jordan treat this as a good species.

Genus **Grammodia** R. & J.
(58) **G. caicus** Cram. Fla.

Tribe Sesiicæ.

Genus **Pachylia** Walk.
(59) **P. ficus** L. Fla.

In Coll. Barnes is also a specimen of *P. resumens* Wlk. labelled Florida. We fear however to add this species to the list as we cannot vouch for the authenticity of the label. Rothschild & Jordan, however, give Florida as a locality.

Genus **Madoryx** Bdv.
(60) **M. pseudothyreus** Grt. Fla.

In Coll. Barnes two specimens from Chocoloskee, Fla. Also reported by Laurent from Miami, Fla. (Ent. News, XIV, 59 & 305.)

Genus **Hemeroplanes** Hbn.
(61) **H. parce** Fabr. Fla., Tex.

Rothschild & Jordan give Florida as a locality for this species. In Coll. Barnes are three specimens labelled Texas. It probably occurs in all the southwestern states.

Genus **Epistor** Bdv.
(62) **E. lugubris** L. Ga., Fla.

Among a long series of this species in Coll. Barnes we also discovered a pair of *E. ocypete* L. the ♀ of which was labelled Florida. We refrain however from adding this species to the list until more authentic data can be secured.

Genus **Cautethia** G. & R.
(63) **C. grotei** Edw. Fla.
Genus **Sesia** Fabr.
(64) **S. tantalus** L.
syn. *ixion* L.
(a) **tantalus zonata** Dru. Fla.

The typical *tantalus* is the South American form. The form *clavipes* with protarsal segments 3–5 club shaped is the Mexican form and may possibly occur as a wanderer farther north. The form *zonata* with normal tarsi and reduced white spots on primaries occurs in Florida and the West Indies.

(65) **S. titan** Cram. Tex.

This species which has been so frequently confounded with *tantalus* is characterized by Rothschild & Jordan as follows: "Discal spots of forewing always simple, never divided, white scaling at anal angle of hind-wing more extended and denser, fore leg of ♂ with two conspicuous black tufts, one at end of femur, the other near the apex of the tibia." In Coll. Barnes two specimens from Shovel Mountain, Texas.

(66) **S. fadus** Cram. Fla.

Occurs as a wanderer in the southern states. The white discal spots of primaries are always partly double in this species.

Genus **Haemorrhagia** G. & R.
(67) **H. thysbe** Fabr.
(a) form **fuscicaudis** Walk. Southern States.
(b) form **thysbe** Fabr. Tex., Ill., Ark.
syn. *ruficaudis* Kirby.
(c) form **cimbiciformis** Steph.
syn. *uniformis* G. & R. = *ruficaudis* Walk.
buffalœnsis G. *floridensis* G.

We have adopted the synonomy of Rothschild & Jordan in dealing with this species; *fuscicaudis* is the southern form with dentate margins of wings and the abdomen from fourth segment on of a chestnut-red color. *Thysbe* is the well-known form with olive markings on last abdominal segments and dentate margins of primaries, whilst *cimbiciformis* has the margins of wings not dentate.

(68) **H. gracilis** G. & R.	N. Y.
(69) **H. diffinis** Bdv.	
(a) **diffinis diffinis** Bdv.	Atlantic States.
(a′) f. vern. **tenuis** Grt.	
(b′) f. æst. **diffinis** Bdv.	
(c′) f. æst. **axillaris** G. & R.	
(b) **diffinis aethra** Stkr.	Me., Montreal, Que., Nipigon, Ont.
(c) **diffinis ariadne** n. nov.	Colo., Man.
syn. *senta* R. & J. (non Strecker).	
(d) **diffinis thetis** Bdv.	Pacific Subregion.
(d′) f. **thetis** Bdv.	Cal.
syn. *palpalis* Grt.	
(e′) f. **cynoglossum** Edw.	Cal.
(f′) f. **rubens** Hy. Edw.	Ore., B. C., Ariz., Utah.

We have been obliged to differ from Rothschild & Jordan in the above arrangement as an examination of Strecker's types has convinced us that his two species *æthra* and *senta* have never been properly recognized. In Group A., *diffinis diffinis*, we have followed the revision; the various seasonal forms of this eastern race are well known; *tenuis*, with non-dentate border of fore wing, represents the spring brood, whilst *diffinis* and *axillaris*, which only differ from each other in the more or less prominent dentation of the border on primaries, constitute two summer forms.

Æthra Stkr. has been placed by Rothschild & Jordan as a synonym of *axillaris G. & R.*, due probably to a statement of Smyth's (Ent. News, 1900, p. 585) that he has bred the form *æthra* from *tenuis* ova. While we recognize the fact that some specimens of *tenuis* tend to lose the dark abdominal band and develop a red apical spot, we consider the true *æthra* well distinct from such specimens. The type specimen, which we have examined, is from Montreal, Que.; besides this there are in the Strecker Coll. several very perfect specimens from Bangor, Me., and in Coll. Barnes 5 ♂♂, 1 ♀ from Nepigon, Ont. These all agree exactly with one another and differ from other eastern forms of *diffinis* in the roughness of the body squamation. The yellow of thorax and abdomen is not the pale yellow of *diffinis* or *tenuis* but rather an orange-brown, bordered narrowly with a pale yellow extending along patagia and sides of abdomen; the red apical patch is sharply defined and not continued along outer margin; the red of anal angle on secondaries is bright and the base of primaries

is also largely suffused with same color; the type specimen has a slightly dentate margin on primaries, not nearly so marked as in *axillaris;* the remaining specimens are almost smooth. The localities would point to the fact that this is a well-marked northern race, probably occuring in only one generation, our Nepigon specimens being taken July 8–15. The race has not the slightest resemblance with *axillaris.*

An examination of Strecker's type of *senta* has shown us that it is identical with the species hitherto known as *brucei French.* Rothschild & Jordan are in error in giving this name to the form with yellow centre to anal tuft dorsally. Strecker in his description distinctly states "anal tuft black," and the type agrees with the statement. In the Streck. collection this form with yellow centre is placed under *brucei Fr.* but this is evidently wrong, for the original description of this latter species states "terminal joint with its tufts, *both lateral and central,* jet black." As the type of *brucei* has been destroyed by Dermestes, the description is all that remains to us for purposes of identification; in Coll. Barnes, however, are several specimens labelled *brucei* and taken by Bruce himself in the same locality as the type specimen; these agree with *senta,* so we consider our reference fairly certain. As *senta Stkr.,* having priority, must be retained in place of *brucei Fr.,* we propose the name *ariadne* for the above form and append following description.

H. diffinis ariadne n. nov.

Palpi black above, pale yellow beneath; front, sides of thorax and patagia lemon yellow; centre of thorax darker, shaded with olive brown, which color extends over dorsal portion of abdomen to anal tuft; the black banding of 4th and 5th abdominal segments, characteristic of *tenuis,* not present; only in worn specimens does it seem to occur. Abdominal segments 1–5 broadly bordered laterally with black with traces of a few white scales intermixed; segments 6 and 7 somewhat lighter dorsally than preceding with pale yellow lateral tufts, extending sometimes to 5; anal tuft centrally orange yellow, laterally black; beneath black. Pectus yellow, legs black, with yellow tufts on tibiæ; abdomen beneath black with very slight sprinkling of yellow hairs on posterior segments, differing markedly in this respect from *senta,* in which the abdomen is grayish yellow beneath. Primaries hyaline with narrow brown-black terminal border, broadest at apex; the border is more or less suffused with rusty-red and contains a distinct apical spot of same color; base of wings deep red-brown with scattered yellow hairs; costal border slightly reddish with a few yellow scales. Secondaries, with very narrow border, distinctly reddish; anal patch reddish, intermixed with

yellow along inner margin. Beneath as above, slightly paler, base and costa of fore wing and costa of hind wing largely pale yellow; anal patch of secondaries broadly black along inner margin. Expanse 1½ in. = 38 mm.

Habitat: Denver, Colo., described from 14 specimens. Types, Coll. Barnes.

All the forms of *thetis* differ from the eastern races in having the anal tuft entirely black.

Diffinis thetis Bdv. is found typical in certain regions of California along the coast. It lacks all trace of red on wings, having the margins and patches deep chocolate brown. The form *cynoglossum* Edw. is similar to *thetis* but can at once be separated by the entirely black hind tibiæ, lacking the yellow hair of *thetis*. Holland's description of *thetis* (Moth Book, p. 64) is obviously incorrect; he seems to have confused this form with our *ariadne*. We consider *rubens* Hy. Edw. perfectly worthy of being retained as a form name; in fact it seems the most widely spread of the western forms, judging by the material at our disposal. It is readily separated from the two preceding by the red apical spot and more or less pronounced red shading at base of primaries and on anal patch of secondaries. The typical locality is Oregon and we have specimens from Victoria, B. C., which agree exactly with the type specimen. A long series from Utah differ from our British Columbia specimens in larger size, smoother squamation, and brighter red, while other specimens from Arizona are still larger, attaining a size of 50 mm. wing expanse. We hardly consider these forms, however, worthy of a separate name.

(70) **H. senta** Stkr. Colo., Utah.
syn. *brucei* Frch.

This species is most easily recognized by the entirely yellow abdomen on underside and black anal tuft. For the synonomy we would refer to our remarks under the preceding species.

Subfamily PHILAMPELIN.E.

Tribe PHILAMPELICÆ.

Genus **Pholus** Hbn.

(71) **P. anchemolus** Cram. Tex.

Dr. Barnes has received one specimen from Kerrville, Texas.

(72) **P. satellitia** L.
(a) **satellitia pandorus** Hbn. Ill., Tex.
(73) **P. achemon** Dru. N. Y., Ill., Tex., Ariz.
(74) **P. typhon** Klug. Ariz.

Dr. Barnes has several bred specimens received from his collector in Palmerlee, Ariz.

(75) **P. vitis** L.
(a) **vitis vitis.** Tex.
syn. *linnei* G. & R.

This species, known since Grote & Robinson's revision as *linnei* is placed once more under *vitis* L. by Rothschild & Jordan. Any one interested in the elaborate proof as to the correct identification of Linné's species is referred to their work.

(76) **P. fasciatus** Sulzer.
syn. *vitis* Dru. (non Linn.) Tex.
(77) **P. labruscae** L. Tex.
Genus **Ampeloeca** R. & J.
(78) **A. versicolor** Harr. N. Y.
(79) **A. myron** Cram. Ill., Tex.
(a) f. **cnotus.** Fla.
Genus **Darapsa** Walk.
(80) **D. pholus** Cram.
syn. *chærilus* Cram. N. Y., N. J., Ill.
Genus **Sphecodina** Blanch.
(81) **S. abbotti** Swainson. N. J., N. Y.
Genus **Deidamia** Clemens.
(82) **D. inscriptum** Harr. N. Y.
Genus **Arctonotus** Bdv.
(83) **A. lucidus** Bdv. Wash., Cal.
Genus **Amphion** Hbn.
(84) **A. nessus** Cram. N. Y., Tex.
Genus **Proserpinus** Hbn.
(85) **P. gaurae** A. & S.
(a) form **gaurae** A. & S. Tex.
(b) form **circae** Edw. Ala.

We consider Rothschild & Jordan in error in placing *circæ* Edw. as a synonym of *gauræ* A. &. S. and their remark that "Edwards, considering the following species (*juanita*) to be the true *gauræ*, described a specimen of the present species as *circæ*"

shows a rather careless reading of the original description. Edwards knew both *gaurœ* and *juanita* and distinguished *circœ* from both these species by the fact that the secondaries were dull chestnut red with no traces of a darker marginal band. In Coll. Barnes are two specimens from Alabama corresponding with Edwards' description, and agreeing with the type specimen in Coll. Neumœgen; these we place for the present as *form. circœ* of *P. gaurœ*.

(86) **P. juanita** Stkr.
(a) **juanita juanita** Stkr. Tex.
(b) **juanita oslari** R. & J. Ariz.

We do not know the form *oslari* which differs from *juanita* in the paler color of wings and the vestigial character of the stigma of primaries.

(87) **P. clarkiae** Bdv. Colo., Ore., Cal.
(88) **P. flavofasciata** Walk.
(a) **flavofasciata flavofasciata** Walk. New England.
(b) **flavofasciata ulalume** Stkr. B. C.
(c) **flavofasciata rachel** Bruce. Colo.

A long series of *ulalume* from British Columbia in Coll. Barnes shows a considerable amount of variation; some specimens (especially ♀'s) show very little trace of the yellow band of secondaries, although none are so black as depicted in Strecker's original figure; others (mostly ♂'s) possess a clear orange yellow band on secondaries and are scarcely to be distinguished from *flavofasciata* from the east. We do not know the Colorado form *rachel* Bruce.

Genus **Euproserpinus** G. & R.
(89) **E. phaeton** G. & R. Cal.
(90) **E. euterpe** Hy. Edw. Cal.

Subfamily CHŒROCAMPINÆ.

Genus **Xylophanes** Hbn.
(91) **X. pluto** Fabr. Fla.
syn. *thorates* Hbn.

This is presumably the same species as that referred to by Laurent (Ent. News XIV, 305) under the name of *Thorates pergesa* (!). In Coll. Barnes is a long series from Florida.

(92) **X. porcus** Hbn.
(a) **porcus continentalis** R. & J. Fla.

Typical *porcus* is restricted by Rothschild & Jordan to Cuba. The form *continentalis* differs, apart from variation in the genitalia, in the less prominent stigma of primaries, as well as the more pronounced discal dots; the olive green shading outside the cell is also reduced. Dr. Barnes has one specimen *ex larv.* from Florida.

(93) **X. falco** Walk. Ariz.

Dr. Barnes has received three specimens of this species, bred by his collector in Arizona.

(94) **X. tersa** Linn. Fla., Tex.
Genus **Celerio** Oken.
(95) **C. gallii** Rott.
(a) **gallii intermedia** Kirby. Me., Colo., Wyo., B. C., Alta.
syn. *chamænerii* Harr.
(96) **C. lineata** Fabr.
(a) **lineata lineata.** N. Y., Ill., Colo., Ariz., Fla.

NOTES ON THE SPECIES OF ANYTUS GRT.

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A recent re-arrangement of the genus made necessary by the accumulation of material has led to a somewhat closer study of the species, particularly with the view of fixing more accurately the standing of certain species. In Hampson's monograph *Hadena evelina* French, is included under the generic term, in my opinion erroneously; altho I am probably no nearer right in placing it with *Fishia*. The other species recognized in the monograph are *atristrigata* Smith, *privata* Wlk., with *monstrata* Wlk., *sculpta* Grt., and *plana* Grt., as synonyms, *profunda* Sm., and *obscura* Sm. More recently I have described *A. tenuilinea* from a single example received from Stockton, Utah.

Anytus atristrigatus Smith, is from Texas and differs from all the other species by having a conspicuous and continuous black streak through the submedian interspace from base to the outer